

ABSTRACT OF THE DISCLOSURE

Method of Optimizing a Response of a Gas Correlation Radiometer to A Trace Amount of a Target Gas

A method optimizes gas correlation radiometer response to trace amounts of target gas in the free atmosphere in competition with interfering gas. Operations identify spectral regions of a first absorption spectrum of the target gas, and of a second absorption spectrum of the interfering gas. A set of similarity data is determined as a function of overlap regions within the spectral region, and a set of contrast data is determined as a function of non-overlap regions within the spectral region, including a plurality of data items within each of a plurality of bandwidths, and a data item corresponding to a center wavelength within each bandwidth. Graphs correspond to each bandwidth. From one graph a center wavelength of an infrared filter is selected, and from another graph there is selected a bandwidth of the infrared filter, to configure an infrared filter for use with the gas correlation radiometer.